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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/664,094	09/19/2000	Masayuki Mizuno	Q60884	5281

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EXAMINER

MONDT, JOHANNES P

ART UNIT	PAPER NUMBER
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3663

DATE MAILED: 10/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.		Applicant(s)	
	09/664,094		MIZUNO, MASAYUKI	
	Examiner		Art Unit	
	Johannes P. Mondt		3663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 8/3/06.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2,5,9-11 and 13-19 is/are pending in the application.
- 4a) Of the above claim(s) 5,9,10,13-17 and 19 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2, 11 and 18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. ***Claims 5, 9, 10, 13, 14, 15, 16, 17, and 19*** have been withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 8/3/06.

Response to Amendment

2. Amendment filed 4/11/06, in conjunction with aforementioned Election forms the basis for this office action. In said Amendment applicant substantially amended claims 2, 11 and 16, and added new claims 18 and 19. In view of aforementioned Election only claims 2, 11 and 18 are being examined, claims 3-4, 6-8 and 12 previously having been cancelled. Comments on Remarks submitted with said Amendment are included below under "Response to Arguments".

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. ***Claim 18*** is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim contains subject matter not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed invention.

In particular, the limitation "said width of each of said slit holes is 3 μm or less" as a range limitation does not find support in the specification because the disclosure of a slit width in the range of 3 μm or less in a ground plate for the elected embodiment is restricted to the first of the three cases (first line in Figure 5) (pages 11-12, especially page 11, line 18) only pertaining to the case when "the ground plate is *only divided by a single slit*". Furthermore, disclosure of 3 μm slit width only exists as an illustration of a much more general procedure wherein the desired slit width is determined based on optimization, with signal line width, signal line thickness and ground plate half widths as well as signal to ground plate distance as input parameters (see pages 11-12). In conclusion, the limitation "said width of each of said slit holes is 3 μm or less" constitutes new matter.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. ***Claim 2*** is rejected under 35 U.S.C. 103(a) as being unpatentable over Nishikawa et al (5,634,208) (Embodiment of Figures 29-32 in view of teaching by Nishikawa regarding signal line width for a given impedance determined by a given through hole).

Nishikawa et al teach a semiconductor integrated circuit comprising a micro-strip structure (title, abstract and "Summary of the Invention", first paragraph: transmission lines form strips and are miniature in size (lco.cit.), hence micro-strip) comprising (see Embodiment of Figures 29-32):

a signal line 62, 63, or 64 (Figure 31 and col. 13, l. 34-36) (for definition see also signal line 6 (col. 7, l. 34, Figure 1A);

a ground plate 4 (Figure 31 and col. 13, l. 47-51) (for definition see also col. 7, l. 31 and Figure 1A);

another signal line 29 (col. 13, l. 39) disposed on an opposite side of the ground plate as said signal line 62,63 or 64 (for definition see also signal line 2 (col. 7, l. 28 and Figure 1A);

wherein a plurality of through holes 41 (col. 7, l. 24-41 and col. 13, l. 47-51) is formed in said ground plate along a longitudinal direction of said signal line (said through holes 41 are formed in sequence along the longitudinal direction of said signal line signal line (for instance signal line 62 in Figure 30) and an inner wall of said plurality of through holes is directly electrically connected to said ground plate (for said through holes are filled with dielectric 5 (Figure 1B and col. 7, l. 33-37); while said ground plate is conductive, being a metal; col. 7, l. 24-41 and col. 8, l. 3-19),

wherein said plurality of through holes is arranged in a matrix having at least two rows and two columns (see Figure 30).

Although Nishikawa et al do not necessarily teach the limitation that an aperture size of each of said through holes is smaller than a width of said signal line it would

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have been obvious to include said limitation in view of the *suggestion* by Nishikawa et al that it is possible to reduce transmission losses by increasing the widths w_1 and w_2 of signal lines 2 and 6 while keeping the impedance constant (i.e., for constant through hole 41; see col. 8, l. 3-7) which is further illustrated by the example of Figure 2.

Motivation to include the teaching by Nishikawa on signal width for given through hole immediately derives from the advantage of the freedom to reduce transmission losses.

Applicant is also reminded on the *prima facie* case of obviousness that typically exists when the ranges as claimed overlap the ranges disclosed in the prior art or when the ranges as claimed do not overlap but are close enough such that one skilled in the art would have expected them to have the same properties. In re Peterson, 65 USPQ2d 1379 (CA FC 2003).

2. **Claim 11** is rejected under 35 U.S.C. 103(a) as being unpatentable over Nishikawa et al (5,634,208) (Embodiment of Figures 29-32 in view of teaching by Nishikawa regarding signal line width for a given impedance determined by a given through hole).

Nishikawa et al teach a semiconductor integrated circuit comprising a micro-strip structure (title, abstract and "Summary of the Invention", first paragraph: transmission lines form strips and are miniature in size (lco.cit.), hence micro-strip) comprising (see Embodiment of Figures 29-32):

a signal line 62, 63, or 64 (Figure 31 and col. 13, l. 34-36) (for definition see also signal line 6 (col. 7, l. 34, Figure 1A);

a ground plate 4 (Figure 31 and col. 13, l. 47-51) (for definition see also col. 7, l. 31 and Figure 1A);

another signal line 29 (col. 13, l. 39) disposed on an opposite side of the ground plate as said signal line 62,63 or 64 (for definition see also signal line 2 (col. 7, l. 28 and Figure 1A);

wherein a plurality of through holes 41 (col. 7, l. 24-41 and col. 13, l. 47-51) is formed in said ground plate and an inner wall of said plurality of through holes is directly electrically connected to said ground plate (for said ground plate is conductive, being a metal; col. 7, l. 24-41 and col. 8, l. 3-19),

wherein said plurality of through holes is formed along a direction orthogonal to a longitudinal direction of a signal transmission line (for instance transmission line 29; see Figure 31) and arranged at equal spaces or in a same pattern (Figure 31).

Although Nishikawa et al do not necessarily teach the limitation that an aperture size of said through holes is smaller than a width of said signal line it would have been obvious to include said limitation in view of the suggestion by Nishikawa et al that it is possible to reduce transmission losses by increasing the widths w_1 and w_2 of signal lines 2 and 6 while keeping the impedance constant (i.e., for constant through hole 41; see col. 8, l. 3-7) which is further illustrated by the example of Figure 2.

Motivation to include the teaching by Nishikawa on signal width for given through hole immediately derives from the advantage of the freedom to reduce transmission losses.

Applicant is also reminded on the *prima facie* case of obviousness that typically exists when the ranges as claimed overlap the ranges disclosed in the prior art or when the ranges as claimed do not overlap but are close enough such that one skilled in the art would have expected them to have the same properties. In re Peterson, 65 USPQ2d 1379 (CA FC 2003).

3. **Claim 18** is rejected under 35 U.S.C. 103(a) as being unpatentable over Nishikawa et al (5,634,208) (Embodiment of Figures 29-32, in view of teaching by Nishikawa regarding signal line width for a given impedance determined by a given slit).

Nishikawa et al teach a semiconductor integrated circuit comprising a micro-strip structure (title, abstract and "Summary of the Invention", first paragraph: transmission lines form strips and are miniature in size (lco.cit.), hence micro-strip) comprising (see Embodiment of Figures 29-32):

a signal line 62, 63, or 64 (Figure 31 and col. 13, l. 34-36) (for definition see also signal line 6 (col. 7, l. 34, Figure 1A);

a ground plate 4 (Figure 31 and col. 13, l. 47-51) (for definition see also col. 7, l. 31 and Figure 1A);

another signal line 29 (col. 13, l. 39) disposed on an opposite side of the ground plate as said signal line 62,63 or 64 (for definition see also signal line 2 (col. 7, l. 28 and Figure 1A);

wherein a plurality of slit holes 41 (col. 7, l. 24-41 and col. 13, l. 47-51) is formed in said ground plate and an inner wall of said plurality of slit holes is only directly electrically connected to said ground plate (for said slit holes are filled with dielectric 5 (col. 7, l. 33-37 and Figure 1B while said ground plate is conductive, being a metal; col. 7, l. 24-41 and col. 8, l. 3-19).

Although Nishikawa et al do not necessarily teach the limitations (a) that an width of each of said slit holes is smaller than a width of said signal line and (b) said width of each of said slit holes is 3 μ m or less, it would have been obvious to include said limitation ad (a) in view of the suggestion by Nishikawa et al that it is possible to reduce transmission losses by increasing the widths w1 and w2 of signal lines 2 and 6 while keeping the impedance constant (i.e., for constant slit hole 41; see col. 8, l. 3-7) which is further illustrated by the example of Figure 2.

Motivation to include the teaching by Nishikawa on signal width for given slit hole immediately derives from the advantage of the freedom to reduce transmission losses.

Applicant is also reminded on the *prima facie* case of obviousness that typically exists when the ranges as claimed overlap the ranges disclosed in the prior art or when the ranges as claimed do not overlap but are close enough such that one skilled in the art would have expected them to have the same properties. In re Peterson, 65 USPQ2d 1379 (CA FC 2003).

Finally, with regard to the limitation ad (b), Applicant's disclosure does not teach why the range as claimed is critical to the invention (in fact, there is no teaching of said limitation within any context other than the case wherein "the ground plate is divided by

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a single slit" (page 11, line 18); see, in particular, the comments on written description and new matter overleaf under 35 U.S.C. 112, first paragraph). In view of the absence of a teaching why a range is critical to the invention Applicant is reminded that it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

Response to Arguments

Applicant's arguments filed 4/11/06 have been fully considered but they are not persuasive. In particular, the newly amended claim language has been examined at the earliest time possible, resulting in rejections over Nishikawa et al as included overleaf.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Johannes P. Mondt whose telephone number is 571-272-1919. The examiner can normally be reached on 8:00 - 18:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack W. Keith can be reached on 571-272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JPM
October 13, 2006

Patent Examiner:


Johannes Mondt (Art Unit: 3663)